D.P.U. 94-181/182

In the Matter of the Petitions of New England Power Company, pursuant to G.L. c. 40A, § 3, for approval by the Department of Public Utilities of an exemption from the operation of the zoning by-laws of the Town of Uxbridge for the construction, operation and maintenance of proposed electric transmission lines; and pursuant to G.L. c. 164, § 72, for a determination by the Department that said transmission lines in the Town of Uxbridge are necessary and will serve the public convenience and be consistent with the public interest.

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FOR: NEW ENGLAND POWER COMPANY
Petitioner

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I. INTRODUCTION

On December 15, 1994, New England Power Company ("NEPCo" or "Company") filed two related petitions with the Department of Public Utilities ("Department"). The first petition, filed pursuant to G.L. c. 164, §72, seeks a determination by the Department that two proposed 115 kilovolt ("kV") electric transmission lines in the Town of Uxbridge are necessary and will serve the public convenience and will be consistent with the public interest. This petition was docketed as D.P.U. 94-181. The second petition, filed pursuant to G.L. c. 40A, §3, seeks exemptions from the operation of the zoning by-laws of the Town of Uxbridge to allow for the construction, operation and maintenance of the same two proposed electric transmission lines. This petition was docketed as D.P.U. 94-182.

The Company proposes to construct, maintain and operate the two proposed 115 kV transmission lines by upgrading two existing 69 kV transmission lines to 115 kV (Exh. NEP-9, at 1). The proposed transmission lines would tap the Company's Q-143, 115 kV transmission line, which is located within NEPCo's Millbury-Woonsocket Right-of-Way ("ROW"), at a point northwest of the intersection of the Millbury-Woonsocket ROW and Richardson Street and continue along private ROWs in a northeasterly direction, crossing two public streets and a private ROW, for a distance of approximately 1.3 miles to the Company's existing Uxbridge Substation in Uxbridge (id. at 1, exh. C; Exh. NEP-7, at 1-1).

The Company's petitions indicate that the proposed transmission lines will extend successively through the following zoning districts of the Town of Uxbridge: (1) the Agricultural District for a distance of approximately 150 feet; (2) the Residence C District for a distance of approximately 1,200 feet; (3) the Residence A District for a distance of

approximately 825 feet; (4) the Residence C District for a distance of approximately 3,025 feet; (5) the Business District for a distance of approximately 825 feet; and (6) the Industrial District for a distance of approximately 900 feet (Exh. NEP-9, at 2). In addition, the transmission lines would pass through a Floodplain District and a Groundwater Protection District (Exh. HO-E-2b).

The Company stated that Section VII of the Town of Uxbridge Zoning By-laws ("Town Zoning By-laws") lists permitted uses in each of the zoning districts and that public utility uses, such as transmission lines, are not specifically permitted uses in any of these districts (id.).[1] In addition, the Company stated that the transmission lines would exceed the height restrictions for buildings and structures in the various zoning districts, as set forth in Section IX of the Town Zoning By-laws (id.).[2]

NEPCo is an electric company as defined under G.L. c. 164, § 1, authorized to generate, transmit, purchase, sell and distribute electricity. New England Power Company, D.P.U. 92-278/279/280, at 2 (1994) ("1994 NEPCo Decision").

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[1] NEPCo also noted that Section XIX.3.B of the Town Zoning By-laws defines permitted uses in the groundwater protection districts to include "[a]ll uses allowed by underlying Zoning Regulations which are not specifically prohibited under [Section XIX.3.A]" (Exh. HO-E-2b).

[2] The Company indicated that Section III.33 of the Town Zoning By-laws defines structures to include "[a]nything constructed or erected, which required location on the ground, or attached to something having location on the ground" (Exh. HO-E-2b).

II. PROCEDURAL HISTORY

Pursuant to an Order of Notice duly issued on March 8, 1995, the Department conducted a joint public hearing with the Energy Facilities Siting Board ("Siting Board") in the Town of Uxbridge on April 3, 1995 to afford interested persons an opportunity to be heard relative to both the Department proceedings (D.P.U. 94-181 and D.P.U. 94-182) and a related Siting Board proceeding (EFSB 94-1). At the public hearing, the Company presented a summary of the proposed project and had available various witnesses to respond to community concerns. See Public Hearing Transcript. No petitions to intervene or to participate were filed with the Department. By Order of the Department dated April 26, 1995, the two Department proceedings were consolidated into one docket.

The Department, in conjunction with the Siting Board, conducted two days of evidentiary hearings on July 11 and 12, 1995.[3] In support of its petitions, NEPCo sponsored the testimony of three witnesses: Francis R. Barys, an engineer in the Protection and Planning Department of the New England Power Service Company ("NEPSCo"), who testified regarding the need for the proposed facility and alternatives thereto; Mark S. Browne, a senior engineer in the Transmission Line Engineering Department of NEPSCo, who testified regarding cost and environmental impacts of the proposed facility; and Dr. Deborah E. Weil, an independent scientist employed by Bailey Research Associates, who testified regarding electric and magnetic fields.

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[3] The Siting Board issued its Final Decision in EFSB 94-1 on October 17, 1995. New England Power Company, EFSB 94-1 (1995) ("NEPCo 94-1 Decision").

The evidentiary record consists of 106 exhibits, consisting primarily of NEPCo's responses to information requests, and 16 record requests.

NEPCo filed its Brief on August 9, 1995.

III. STANDARD OF REVIEW

In its petition for a zoning exemption, the Company seeks approval under G.L. c. 40A, § 3, which, in pertinent part, provides:

> Land or structures used, or to be used by a public service corporation may be exempted in particular respects from the operation of a zoning ordinance or by-law if, upon petition of the corporation, the [D]epartment of [P]ublic [U]tilities shall, after notice given pursuant to section eleven and public hearing in the town or city, determine the exemptions required and find that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public....

Under this section, the Company first must qualify as a public service corporation (see Save the Bay, Inc. v. Department of Public Utilities, 366 Mass. 667 (1975)), and establish that it requires an exemption from the local zoning by-laws. The Company then must demonstrate that the present or proposed use of the land or structure is reasonably necessary for the public convenience or welfare.

In determining whether a company qualifies as a "public service corporation" for purposes of G.L. c. 40A, § 3, the Supreme Judicial Court has stated:

> among the pertinent considerations are whether the corporation is organized pursuant to an appropriate franchise from the State to provide for a necessity or convenience to the general public which could not be furnished through the ordinary channels of private business; whether the corporation is subject to the requisite degree of governmental control and regulation; and the nature of the public benefit to be derived from the service provided.

Save the Bay, 366 Mass. at 680.

In determining whether the present or proposed use is reasonably necessary for the public convenience or welfare, the Department must balance the interests of the general public against the local interest. Id. at 685-686; Town of Truro v. Department of Public Utilities, 365 Mass. 407 (1974). Specifically, the Department is empowered and required to undertake "a broad and balanced consideration of all aspects of the general public interest and welfare and not merely [make an] examination of the local and individual interests which might be affected." New York Central Railroad v. Department of Public Utilities, 347 Mass. 586, 592 (1964). When reviewing a petition for a zoning exemption under G.L. c. 40A, § 3, the Department is empowered and required to consider the public effects of the requested exemption in the State as a whole and upon the territory served by the applicant. Save the Bay, supra, at 685; New York Central Railroad, supra, at 592.

With respect to the particular site chosen by a petitioner, G.L. c. 40A, § 3 does not require the petitioner to demonstrate that its preferred site is the best possible alternative, nor does the statute require the Department to consider and reject every possible alternative site presented. Martarano v. Department of Public Utilities, 401 Mass. 257, 265 (1987); New York Central Railroad, supra, at 591; Wenham v. Department of Public Utilities, 333 Mass. 15, 17 (1955). Rather, the availability of alternative sites, the efforts necessary to secure them, and the relative advantages and disadvantages of those sites are matters of fact bearing solely upon the main issue of whether the preferred site is reasonably necessary for the convenience or welfare of the public. Id.

Therefore, when making a determination as to whether a petitioner's present or proposed use is reasonably necessary for the public convenience or welfare, the Department

examines: (1) the present or proposed use and any alternatives or alternative sites identified (see Massachusetts Electric Company, D.P.U. 93-29/30, at 10-14, 22-23 (1995) ("1995 MECo Decision"); 1994 NEPCo Decision, supra at 19; Tennessee Gas Pipeline Company, D.P.U. 85-207, at 18-20 (1986)) ("1986 Tennessee Decision"); (2) the need for, or public benefits of, the present or proposed use (see 1995 MECo Decision, supra at 10-14; 1994 NEPCo Decision, supra at 19-22; 1986 Tennessee Decision, supra at 17); and (3) the environmental impacts or any other impacts of the present or proposed use (see 1995 MECo Decision, supra at 14-21; 1994 NEPCo Decision, supra at 20-23; 1986 Tennessee Decision, supra at 20-25).

After examining these three issues, the Department balances the interests of the general public against the local interest, and determines whether the present or proposed use is reasonably necessary for the convenience or welfare of the public.[4]

With respect to the Company's petition filed pursuant to G.L. c. 164 § 72, the statute requires, in relevant part, that an electric company seeking approval to construct a transmission line must file with the Department a petition for:

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[4] In addition, the Massachusetts Environmental Policy Act ("MEPA") provides that "[a]ny determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." G.L. c. 30, § 61. Pursuant to 301 C.M.R. § 11.01(3), these findings are necessary when an Environmental Impact Report ("EIR") is submitted by the company to the Secretary of Environmental Affairs, and should be based on such EIR. Where an EIR is not required, c. 30, § 61 findings are not necessary. 301 C.M.R. § 11.01(3). In the present case, the record indicates that no EIR was required for the proposed project (RR-HO-11), and, therefore, a finding is not necessary in this case under G.L. c. 30, § 61.

> authority to construct and use ... a line for the transmission of electricity for distribution in some definite area or for supplying electricity to itself or to another electric company or to a municipal lighting plant for distribution and sale ... and shall represent that such line will or does serve the public convenience and is consistent with the public interest. ... The [D]epartment, after notice and a public hearing in one or more of the towns affected, may determine that said line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest.[5]

The Department, in making a determination under G.L. c. 164, § 72, is to consider all aspects of the public interest. Boston Edison Company v. Town of Sudbury, 356 Mass. 406, 419 (1969). Section 72, for example, permits the Department to prescribe reasonable conditions for the protection of the public safety. Id. at 419-420. All factors affecting any phase of the public interest and public convenience must be weighed fairly by the Department in a determination under G.L. c. 164, § 72. Town of Sudbury v. Department of Public Utilities, 343 Mass. 428, 430 (1962).

As the Department has noted in previous cases, the public interest analysis required by G.L. c. 164, §72 is analogous to the Department's analysis of the "reasonably necessary for the convenience or welfare of the public" standard under G.L. c. 40A, § 3. See, New England Power Company, D.P.U. 89-163, at 6 (1993); New England Power Company, D.P.U. 91-117/118, at 4 (1991); Massachusetts Electric Company, D.P.U. 89-135/136/137, at 8 (1990). Accordingly, in evaluating petitions filed under G.L. c. 164, § 72, the Department relies on the standard of review for determining whether the proposed project is

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[5] Pursuant to the statute, the electric company must file with its petition a general description of the transmission line, provide a map or plan showing its general location, and estimate the cost of the line in reasonable detail. G.L. c. 164, § 72.

reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3. Id.

IV. DESCRIPTION

A. Need for the Proposed Project

NEPCo asserted that the proposed project is needed in order to provide a reliable supply of electricity to the area served by the Uxbridge substation (Exh. NEP-7, at 2-1). With regard to its reliability objectives, the Company described classes of service reliability and system design criteria applicable to the classes of transmission and distribution found in the proposed project area (id. at app. B-2). First, with regard to reliability of service to customer load, the Company's system design criteria require that "nonfirm peak load in a contiguous area ... not exceed 30 [megawatts]" and that "a 3-hour outage once in three years, or a 24-hour outage once in ten years ... not [be] exceeded for load above 20 [megawatts]" (id., at sec. 2.5.1). In addition, the Company's system design criteria require that "the development of supply facilities should preclude equipment loadings above emergency capabilities, and voltage regulations beyond acceptable limits" (id., at app. B-2; Exh. NEP-10, at 2-3). Second, the Company indicated that the criteria provide that the system should be designed so that both circuits on an overhead double circuit structure will not be permanently faulted (Exh. HO-N-13a). [6,7]

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[6] The Company indicated that consideration also must be given to maintaining the availability of bulk power transfer capability when designing facilities that may affect such availability (Exhs. HO-A-16; HO-A-19).

[7] The Department notes that in its final decision in EFSB 94-1, the Siting Board (continued...)

The Company identified two problems with the present 69 kV supply to the Uxbridge substation which result in a failure of the existing supply configuration to meet the Company's reliability criteria (Exhs. NEP-7, at 2-1; NEP-10, at 2-3). First, the Company stated that the current demand from the Uxbridge area exceeds the firm capability of equipment under contingency conditions (Exh. NEP-7, at 2-1). Second, the Company noted that the location of the two 69 kV transmission lines serving the Uxbridge substation on a single line of double-circuit towers for 12.4 miles makes both lines susceptible to a simultaneous fault, which would result in an outage for the customers served by the Uxbridge substation (id.; Exh. NEP-10, at 3). The Company further asserted that acceleration of conservation and load management ("C&LM") programs would not eliminate the need for additional energy resources to ensure a reliable supply of electricity to the Uxbridge substation area (Exh. HO-A-1).

For the Uxbridge Power Supply Area ("PSA"), the Company provided information regarding historical system-coincident peak demand for 1980 through 1994 and forecasted

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[7](...continued)

reviewed in detail the need for the proposed project. As part of its review, the Siting Board evaluated: (1) whether the Company applied reasonable system reliability criteria; (2) whether the Company used reviewable and appropriate methods for assessing system reliability based on load flow analyses; (3) whether existing and projected loads, under certain contingencies, exceed the Company's reliability criteria, thereby requiring additional energy resources; and (4) whether acceleration of conservation and load management programs could eliminate the need for such additional energy resources. NEPCo 94-1 Decision, supra at 8-22. Based on its review, the Siting Board found that the Company had demonstrated that the existing supply system is inadequate to satisfy existing load supplied by the Uxbridge substations and that additional energy resources are needed for reliability purposes in the Uxbridge area. Id. at 22.

base-case and high-case system-coincident peak demand for the years 1995 through 2013 (Exh. HO-N-1b). The Company stated that its PSA forecasts are statistical forecasts of seasonal system-coincident peak demand that are used for purposes of system transmission and area supply planning (Exh. HO-N-1a). The Company also provided Uxbridge substation loads coincident with the system peak for the years 1988 through 1994 (Exh. HO-N-3).

In forecasting load for the Uxbridge substation, the Company first prepared the PSA forecast and then derived the Uxbridge substation forecast from the PSA forecast, based on the historical relationship of Uxbridge substation peak to the PSA peak (Exh. HO-N-1a). In presenting its PSA forecast, the Company explained its use of historic trends to prorate the MECo system forecast into separate PSA forecasts (id.).

The Company asserted that under 1993 summer peak load and foreseeable contingencies, existing facilities would be loaded in excess of summer emergency capabilities (Exhs. HO-N-6; HO-N-15). In support of its assertion, the Company provided a set of load flow analyses, based on 1993 and 1994 system-coincident peak loads at the Uxbridge substation, to simulate system operation under normal conditions and with each major component out of service (Exhs. HO-N-14; HO-N-15). With normal load operation of the distribution system, the Company's load flow analyses demonstrate exceedances of equipment capabilities under 1993 summer peak load (Exh. HO-N-15b to 15e; Tr. 1, at 52-56). The Company's load flow analyses also demonstrate that under 1994 peak load conditions, each of four contingencies would cause remaining equipment to be loaded above emergency summer capabilities (RR-HO-2f to 2j). The Company also provided load flow analyses based on projected 1997 peak load and the operation of the proposed facilities (Exh. HO-N-16k to

160). These load flow analyses demonstrate that, under foreseeable contingencies, equipment would be loaded well within emergency summer capabilities (id.).

The Company further asserted that providing firm supply to the Uxbridge substation in the form of two adequate supplies is justified based on past outage experience and the Company's commitment to providing reliable electrical service to the customers supplied from that substation (RR-HO-16). The Company noted that on February 16, 1990, there was a permanent double circuit outage due to lightning that resulted in the loss of supply to the Uxbridge substation and a customer outage lasting seven hours (Exh. HO-N-8a).[8] The Company maintained that the proposed project would decrease the risk of double circuit outages by 89 percent due to the reduction of the distance for double circuit exposure to 1.3 miles and other design features of the proposed transmission line (Exh. NEP-10, at 3; RR-HO-16; Tr. 2, at 56-57).

B. The Proposed Project and Alternatives

In order to meet the identified need, NEPCo proposes to convert the supply to the Uxbridge substation to 115 kV by converting two existing 1.3-mile, 69 kV lines to 115 kV along the existing ROW from the Millbury-Woonsocket ROW to the Uxbridge substation ("Uxbridge spur ROW") (Exh. NEP-7, at 1-1, 2-1). The Company would connect both of the converted lines to the existing Q-143, 115 kV transmission line ("Q-143 line") which is

[8] The Company noted that there have been eight other double circuit outages of the same lines since 1990 where both lines went out of service for up to one minute (Exh. HO-N-22).

located within NEPCo's existing Millbury-Woonsocket ROW, and thereby loop the Q-143 line into the Uxbridge substation (id. at 2-1, 2-5).

The Company evaluated alternative approaches that also would meet the identified need including (1) an upgrade of the existing 69 kV system ("69 kV upgrade"), and (2) conversion of the Uxbridge substation to 115 kV by converting two existing 69 kV lines to 115 kV, as in the proposed project, but connecting the converted lines to two existing 115 kV transmission lines along the Millbury-Woonsocket ROW, the Q-143 line and the R-144 line ("115 kV double tap alternative") (id. at 2-6; RR-HO-3a; RR-HO-3b).[9] The Company asserted that the proposed project would be preferable to both the 69 kV upgrade and the 115 kV double tap alternative because it has a lower total cost than either alternative (Exh. NEP-7, at 2-8; Brief at 19).[10]

In addition, the Company identified six alternative routes for the 115 kV line, all of which extend from the Millbury-Woonsocket ROW to the Uxbridge substation (Exh. NEP-7,

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9 The Company stated that, under the 115 kV double tap alternative, circuit breakers would be necessary on the Q-143 and/or R-144 lines in order to protect the lines in the event of a double outage on the proposed 115 kV lines (Exh. HO-A-19). The Company therefore provided information for the double tap alternative with both one circuit breaker and with two circuit breakers (id.; Exh. HO-A-16; RR-HO-9).

10 The Department notes that in the Siting Board's review of the Company's petition before it, the Siting Board analyzed the three alternative project approaches with respect to reliability, environmental impacts and cost, as required by the Siting Board's enabling statute. In weighing reliability, cost, and environmental impacts of the alternative approaches, the Siting Board determined that the environmental advantage of the 69 kV upgrade was limited, while the cost advantage of the proposed project was significant. NEPCo 94-1 Decision, supra at 44. The Siting Board therefore found that, on balance, the proposed project was preferable to the 69 kV upgrade. Id. The Siting Board also found that, on balance, the proposed project was preferable to the 115 kV double tap alternative. Id.

at 3-3, 3-9). After screening the alternatives, the Company compared its proposed route to two alternatives -- a 1.8-mile overhead route that would follow a railroad ROW and a new private ROW, and a 1.7-mile underground route that would follow public streets and an existing private ROW (id. at 1-1). The Company concluded that the three routes would be equivalent with respect to reliability but that the proposed route would be preferable with respect to environmental impacts and cost (id. at 3-12).[11]

The Company also considered the alternative of meeting the identified need through an acceleration of its C&LM programs. The Company concluded that such an approach would not address the need for additional energy resources based on equipment loadings given the large amount of load reduction that would be required (Exh. HO-A-1; Brief at 13). The Company provided projections of avoided summer megawatts ("MW") for the entire MECo system due to incremental demand-side management ("DSM") above the 1993 levels for the years 1994 through 1996 as follows: (1) 1994, 12 MW; (2) 1995, 37 MW; and

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[11] In the Siting Board's review, the environmental impacts and costs of the primary route were compared to each of the alternative routes. NEPCo 94-1 Decision, supra at 60-89. The Siting Board found that (1) the proposed route would be preferable to both the overhead and underground alternative routes with respect to cost, and (2) the proposed route would be comparable to the underground alternative route with respect to environmental impacts and preferable to the overhead alternative route with respect to environmental impacts. Id. at 87. The Siting Board noted that the cost advantage of the proposed route relative to the underground alternative route would be significant with respect to both construction costs and operation and maintenance costs. Id.

Pursuant to its statutory mandate, the Siting Board concluded that the proposed route would be preferable to both the underground and overhead alternative routes with respect to providing a necessary energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. Id. at 88.

(3) 1996, 64 MW (Exh. HO-N-4b). The Company stated that it would not be feasible to reduce the present 23.5 MW peak load at the Uxbridge substation, which accounts for approximately 11 percent of the Uxbridge/Webster PSA load, to 12.5 MW in order to maintain existing facilities within their emergency ratings (Brief at 13).

C. Impacts of the Proposed Project

In accordance with its responsibility to undertake a broad and balanced consideration of all aspects of the general public interest and welfare, the Department examines the impacts associated with the proposed project to identify any significant impacts that would likely occur during construction and operation of the proposed facilities.

The Company asserted that the known impacts of the proposed facilities are temporary and relatively minor (Brief at 31). In reviewing impacts to wetlands and surface waters, the Company noted that construction of the proposed facilities along the primary route would require a minimal amount of construction within wetland areas and in the vicinity of surface water (Exh. NEP-7, at 3-20 to 3-23). The Company stated that it would use existing access roads where possible and would use appropriate mitigation measures (id.). With respect to groundwater and wells, the Company noted that, under an agreement with the Town of Uxbridge, it would not use herbicides in a portion of the route that would cross the aquifer used for the Town of Uxbridge's water supply and the Groundwater Overlay District (Exhs. HO-E-5a, at 17-23; HO-E-6).

In evaluating impacts to land resources, the Company indicated that its primary route would use an existing ROW and employ mitigation to avoid potential soil erosion and adverse effects to wildlife habitat (Exh. NEP-7, at 3-26, 3-27). The Company indicated that

land use along the primary route is varied with a small number of residences and no sensitive receptors in close proximity to the route (Exhs. HO-E-13A; HO-E-23). The Company also noted that the primary route has been maintained continuously for an extended period of time and that the proposed facilities along the primary route would not interfere with existing land uses along the route (Exh. NEP-7, at 3-25, 3-26). In addition, the Company noted that the incremental visual impacts of the proposed facilities would be minimal (id. at 3-27, 3-28).

In evaluating the magnetic field impacts of the proposed facilities, the Company provided calculations of the highest magnetic field levels for the existing and proposed transmission lines along the primary route (Exhs. HO-E-15a; NEP-10, exh. FRB-7; RR-HO-10). These calculations indicated that magnetic field levels would decrease from current levels at the residence closest to the ROW and at the left edge of the ROW (the north side of the ROW) and would increase at the right edge of the ROW (the south side of the ROW) and within the ROW (Exhs. HO-E-15a; NEP-10, exh. FRB-7; RR-HO-10). The Company noted that it had incorporated features into the design of the proposed facilities that would decrease magnetic field levels at the edge of the ROW (Exh. HO-E-14b; Tr. 1, at 22-23, 97).[12]

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[12] Evaluation of the environmental impacts of the proposed facilities along the primary route and potential mitigation for such impacts with respect to: (1) water resources; (2) land resources; (3) land use; (4) visual impacts; and (5) magnetic field levels were also a part of the review conducted by the Siting Board in EFSB 94-1. NEPCo 94-1 Decision, supra at 62-72. In addition to the Company's mitigation, the Siting Board suggested that the Company implement feasible and cost-effective measures to discourage access to the ROW in general. Id. at 71-72. The Siting Board found that with the use of the identified mitigation measures, the environmental impacts of the proposed facilities would be minimized. Id. at 72.

V. ANALYSIS AND FINDINGS

NEPCo is an electric company as defined by G.L. 164, § 1, authorized to generate, distribute and sell electricity. 1994 NEPCo Decision, supra at 2. Accordingly, the Company is authorized to petition the Department as a public service corporation for the determinations sought under both G.L. c. 40A § 3, and G.L. c. 164, § 72, in this proceeding.

G.L. c. 40A, § 3, authorizes the Department to grant to public service corporations exemptions from local zoning ordinances or by-laws if the Department determines that the exemption is required and finds that the present or proposed use of the land or structure is reasonably necessary for the convenience or welfare of the public. With respect to the Company's petition pursuant to G.L. c. 40A, § 3, as discussed in Section I, above, the Company seeks exemptions from the operation of Sections VII, IX and XIX.3.B of the Town Zoning By-laws. Based on its review of these sections of the by-laws, the Department concludes that they could impede construction and implementation of the Company's proposed 115 kV transmission lines and associated equipment. Therefore, the Department finds that the Company's proposed transmission lines and related facilities require the petitioned exemptions from operation of Sections VII, IX and XIX.3.B of the Town Zoning By-laws.

Pursuant to G.L. c. 40A, § 3, the Department next examines whether the company's proposed use of the land and structures as set forth in its petitions is reasonably necessary for the convenience or welfare of the public. As an initial matter, the Department accepts the

Company's reliability criteria as being consistent with the goal of providing energy supplies to meet this standard.

With respect to the need for, and the public benefits of, the proposed project, the Company has provided evidence that the proposed 115 kV transmission lines and associated equipment would yield benefits by providing additional electrical capacity and reliable supply to the Company's customers in the Uxbridge area. In the process of relating the need for the proposed facilities to the Company's reliability criteria, the Company has relied on quantitative techniques with adjustments for forecasting load at the PSA level, and has provided a reasonable explanation for its estimation of load growth at the substation level, based on its PSA forecast. The Company has demonstrated that under the forecasted load growth, supply to the Uxbridge substation currently does not meet the Company's reliability criteria in the event of several likely contingencies. Consequently, the Department finds that there is a need for additional energy resources to serve the public convenience or welfare of the public based on the Company's reliability criteria relative to equipment loadings.

The Company also provided analyses that demonstrate that the proposed facilities are needed even without the forecasted future load growth based on existing load levels. First, the present supply system does not meet the Company's stated reliability criteria relative to overhead double circuit structures. In addition, the Company's record of supply system outages since 1990, including a seven-hour outage in 1990, establishes that it is reasonably likely that a double circuit outage could occur, resulting in the loss of supply to the Uxbridge substation. The Department notes that the seven-hour outage experienced in February 1990

significantly exceeded the three-hour threshold for an outage that would warrant changes to provide firm supply for a 20 MW load.

The outage experience under the current supply configuration for Uxbridge substation, including this outage of considerable duration just six years ago, appears to be at least close to a level of outage experience that would warrant changes to provide firm supply, based on the Company's reliability criteria for a substation load of 20 MW or more. Therefore, it is reasonable for the Company to maintain the integrity of its two-line supply by limiting the exposure of such supply to double circuit outages, consistent with its reliability criteria.

Accordingly, based on the foregoing, the Department finds that the Company has established that supply to the Uxbridge substation does not meet the Company's reliability criteria with respect to overhead double circuit structures. Consequently, the Department finds that there is a need for additional energy resources to serve the convenience or welfare of the public based on the Company's reliability criteria with regard to double circuit outages.

With regard to meeting the Company's reliability criteria through accelerated C&LM, the Department notes that even if the entire Uxbridge/Webster PSA 1996 DSM savings were applied to the 1994 summer coincident Uxbridge substation peak load, which was less than the 1993 summer peak, facilities would still be loaded above emergency capabilities in the event of the outage of major substation equipment. Thus, even if DSM savings were allocated differently, or if existing programs could be accelerated by increased personnel or effort, it is not likely that the Uxbridge substation load could be reduced to 12.5 MW in order to maintain equipment loadings within summer emergency capabilities under

contingency conditions. In addition, the Department notes that accelerated C&LM would not eliminate the need for additional energy resources based on double circuit outage exposure.

Accordingly, the Department finds that acceleration of C&LM programs could not eliminate the need for additional energy resources based on the Company's reliability criteria.

Based on the foregoing, the Department finds that the Company has demonstrated that the existing supply system is inadequate to satisfy existing load supplied by the Uxbridge substation, and therefore, that additional energy resources are reasonably necessary for the convenience or welfare of the public in the Uxbridge area.

The Department notes that the Company evaluated a reasonable range of alternatives to the proposed project, including two project alternatives and two alternative routes, in developing its strategy to supply the Uxbridge PSA with a reliable supply of electrical power. The record further indicates that the Company has considered possible environmental impacts of the proposed transmission lines and associated equipment that may be of concern to the surrounding community, including water resources, land resources, land use, visual, and magnetic field level impacts. The record indicates that the Company would implement measures to mitigate these impacts.[13]

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[13] The Department notes that in the Siting Board's review in Docket No. EFSB 94-1, it found that, with the use of these identified mitigation measures, the environmental impacts of the proposed facilities would be minimized, and that the proposed project would provide a necessary energy supply to the Commonwealth with a minimum impact on the environment at the lowest possible cost. NEPCo 94-1 Decision, supra at 74, 88.

Thus, with the implementation of the mitigation measures identified by the Company, the Department finds that the general public interest in the construction, operation and maintenance of the two proposed 115 kV transmission lines and associated equipment along the Uxbridge Spur ROW outweighs the minimal impacts of the Company's proposed project on the local community. Accordingly, the Department finds that the proposed transmission lines and associated equipment are reasonably necessary for the convenience or welfare of the public.

Pursuant to Chapter 164, § 72, of the General Laws, a company wishing to build a transmission line is required to file with the Department a petition for authority to construct and use a line for the transmission of electricity for distribution or for supplying electricity to itself. The Department must determine, after the prescribed notice and public hearing, whether "[the] line is necessary for the purpose alleged, and will serve the public convenience and is consistent with the public interest." G.L. c. 164, § 72. The Department notes that in its filing under G.L. c. 164, § 72, the Company has complied with the requirement of § 72 that it describe the proposed transmission lines, provide diagrams showing their general location, and estimate their cost in reasonable detail.

As noted in Section III, above, the Department relies on the standard of review for determining whether the proposed project is reasonably necessary for the convenience or welfare of the public under G.L. c. 40A, § 3, in evaluating petitions filed under G.L. c. 164, § 72. Based on the record in this proceeding, and the above analysis, and with the implementation of the mitigation measures identified by the Company, the Department finds, pursuant to G.L. c. 164, § 72, that the two proposed 115 kV transmission lines and

associated equipment are necessary for the purpose alleged, will serve the public convenience, and are consistent with the public interest.

VI. ORDER

Accordingly, after due notice, hearing and consideration, it is hereby

ORDERED: That the Company's petitions, D.P.U. 94-181 and D.P.U. 94-182, be allowed and that the proposed 115 kV transmission lines, as described in the Company's exhibits on file with the Department, be exempt from the operation of Sections VII, IX and XIX.3.B of the Town of Uxbridge Zoning Bylaw, pursuant to G.L. c. 40A, § 3, to the extent that the transmission lines are used for electric power transmission purposes; and it is

FURTHER ORDERED: That the two proposed 115 kV transmission lines as described in the Company's petition and exhibits, are necessary for the purposes alleged by the Company, and will serve the public convenience and are consistent with the public interest pursuant to G.L. c. 164, § 72; and it is

FURTHER ORDERED: That the Company shall implement all mitigation measures identified by the Company in this proceeding and required by the Siting Board in its Final Decision in Docket No. EFSB 94-1; and it is

FURTHER ORDERED: That the Company shall obtain all other governmental approvals necessary for this project before its construction commences; and it is

FURTHER ORDERED: That the Secretary of the Department shall transmit a certified copy of this Order to the Town Clerk of the Town of Uxbridge; and that Massachusetts Electric Company shall serve a copy of this Order upon the Conservation Commission, Planning Board and Board of Selectmen of the Town of Uxbridge within five

business days of its issuance and shall certify to the Secretary of the Department within ten business days of its issuance that such service has been accomplished.

By Order of the Department,

_____
John B. Howe, Chairman

_____
Mary Clark Webster, Commissioner

_____
Janet Gail Besser, Commissioner

Appeal as to matters of law from any final decision, order or ruling of the Commission may be taken to the Supreme Judicial Court by an aggrieved party in interest by the filing of a written petition praying that the Order of the Commission be modified or set aside in whole or in part.

Such petition for appeal shall be filed with the Secretary of the Commission within twenty days after the date of service of the decision, order or ruling of the Commission, or within such further time as the Commission may allow upon request filed prior to the expiration of twenty days after the date of service of said decision, order or ruling. Within ten days after such petition has been filed, the appealing party shall enter the appeal in the Supreme Judicial Court sitting in Suffolk County by filing a copy thereof with the Clerk of said Court. (Sec. 5, Chapter 25, G.L. Ter. Ed., as most recently amended by Chapter 485 of the Acts of 1971.)